Course Unit Descriptor

Study Programme: Power, Electronic and Telecommunication Engineering (Communications Technologies and Signal Processing)

Course Unit Title: Communication networks - introduction

Course Unit Code: EK202

Name of Lecturer(s): Dejan Vukobratović

Type and Level of Studies:Bachelor level

Course Status (compulsory/elective): compulsory

Semester (winter/summer): summer

Language of instruction:english

Mode of course unit delivery (face-to-face/distance learning): face-to-face

Number of ECTS Allocated:7

Prerequisites: none

Course Aims:

Basic knowledge related to the communication and computer networks. Connections in network surrounding. Students should acquire the basic function of network connections and layered function distribution.

Learning Outcomes:

Students would acquire the basic principles of communication networks. It is intended to clarify the fundamental problems at network layers. The subject is organized as a sequel of engineering problems that should be solved at the various levels of communication link. An engineering compromise would be explained, as a solution that satisfy both the final user, and the requirements considering the available resources.

Syllabus:

Introduction (plan, pre-exam, exam, literature); Network transmission fundamentals - message, packet, session, exchange; Classical networks, frame, synchronous transmission and transport systems. Computer networks, types; Layer structures - advantages and disadvantages. PHY level - medium, line codes. Modem. MATLAB example. Data link layer - error detection and ARQ procedures; MATLAB example. Multiple access. Collision-detection, random access, carrier sensing, tree, compromised algorithms. MATLAB example. Network layer and path finding. MATLAB example. QoS. Transport layer, session, presentation and application. Security problems. MATLAB example.

Required Reading: Relevant literature in English TBD

Weekly Contact Hours:5	**Lectures:3**	**Practical work:2**

Teaching Methods:

Lessons; practical work and laboratory work with matlab examples.

Knowledge Assessment (maximum of 100 points):100

Pre-exam obligations	points	**Final exam**	points
Homework	10	Written part of the exam	70
Tes	20		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.